

*this GRASS*  
**IS GREENER**

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**If we want to support more sustainable industries, then we should definitely be looking to hemp. Sustainable and with over 25,000 uses, it's quite possibly the most purposeful of plants!**

Words: *James Vosper*

**H**emp is a name used to describe cannabis plants that contain less than one percent THC, the psychoactive compound that is found in marijuana. The fact they are essentially the same plant, except one is psychoactive and the other is not, is one of the reasons that hemp has been stigmatised over the years. However, things are changing. Industrial hemp is now enjoying a resurgence as a sustainable industry around the world.

## **THE ULTIMATE SUSTAINABLE CROP**

Hemp is a hardworking crop, absorbing 22 tonnes of carbon dioxide from the atmosphere per hectare, which is more than any other crop grown on land. And unlike trees, which take years to mature, hemp grows to maturity in just 90 to 120 days. In many parts of Australia, this means two crops can be grown each year. Perhaps particularly impressive is that it requires limited amounts of water and can be grown organically with little or no fertilisers or pesticides.

And there's more to its benefits than just sustainability. Hemp is a better-performing crop than those with similar uses.

Take paper, for example. Hemp has a higher concentration of cellulose, which is the principal ingredient in making paper. Trees contain just 30 percent cellulose and the process of removing non-cellulose matter requires toxic chemicals. Hemp plants, on the other hand, contain 85 percent cellulose, which can be readily recovered and whitened using hydrogen peroxide. It is estimated that one hectare of hemp can produce four times as much paper as trees. In terms of the end product, hemp paper even lasts longer than paper from trees and does not discolour over time.

Hemp also makes a great alternative for cotton. Even though cotton is now being grown organically, which has lessened the negative effects on the environment, hemp still outperforms cotton in many ways. Hemp textiles are more durable than cottons, lasting longer and becoming softer over time. Hemp also has natural antiseptic qualities that make it ideal for workwear and sportswear. In terms of cultivation, it produces twice as much fibre as cotton per hectare, requiring far less water. It takes just 2.1 litres of water to produce one kilogram of hemp textile versus cotton, which requires 9.8 litres for the same amount. With many Australian regions facing ongoing drought, hemp crops seem to be a more viable option for farmers.

## **A BUDDING INDUSTRY**

The hemp industry in Australia started to take off when hemp foods were legalised in 2017. Australia was the last of the OECD nations to do this. This enabled more farmers into the industry as hemp foods became commercially viable on relatively small parcels of land. The other great leap forward was the passing of the US Farm Bill in 2018, allowing industrial hemp to be farmed in all US states. While you might not think this would have an impact here, it



*Freshly harvested hemp stalks*

## STALKS

The stalk of the hemp plant is typically separated into two parts: the woody core (hurd) and the outer fibre (bast). This is generally after the plant has been left in the field to rot, a process called retting, however, this leads to a lower quality and weaker fibre. Australia is at the forefront of dry retting technology, which enables crops to be processed immediately after being mowed. This technology is now being exported to other markets such as Canada and the US.

The core has many uses but is most commonly used as animal bedding and as a building material. As animal bedding, the hurd has the advantage of being very absorbent and has antibacterial properties, great for coping with harmful compounds such as ammonia. Hemp hurd is also used in the production of hemp concrete for building, used to make bricks or, more often, poured into formwork in layers. Hemp buildings have reduced energy bills as they are passively heated and cooled. The material is breathable, enabling it to manage humidity, thereby avoiding moulds. It is highly resistant to pests and is fireproof – making it the ideal building material for Australian houses.

As the concrete cures, it undergoes a process called carbonisation and continues to be a carbon sink for years.

The fibre from the hemp stalk can be spun and made into durable ropes, twines and textiles. The fibre industry is developing slowly in Australia and most of the hemp textiles used in clothing here are imported. While a hemp textile industry is possible, it will require significant investment in processing equipment.

## ROOTS

The roots of the hemp plant are primarily composed of sugars and lipids, although, low levels of terpenes, alkaloids and various other compounds have been isolated. In particular, specific terpenes contained in the roots are thought to have liver-protecting and antioxidant effects, while others have demonstrated anti-tumor effects or the ability to reduce inflammation, pain and bacterial infection. The roots can be made into oils, balms, salves and teas.

## A BRIGHT FUTURE

In the past hemp suffered from the stigma of being related to recreational

cannabis, but now it is being leveraged by major companies to market to health and environmentally conscious consumers. This has also led to the launch of food products that only contain minor amounts of hemp but are labelled as hemp products. Therefore, we need to be aware of companies that make claims about the therapeutic qualities of their products beyond the proven nutritional value.

The hemp industry is still relatively small in Australia when compared to other countries. In 2017–2018 there were 2,500 hectares of industrial hemp grown here, while China grew 50,000 hectares in 2016 and the US planted about 52,000 hectares. As the world turns towards organic foods and goods at an increasing rate, Australia is well-placed with more than half of the world's certified organic farmland. We also have an organic certification process that is trusted worldwide, making our organic products highly sought-after. One thing is certain, hemp is poised for a bright future in Australia.

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[www.hempalliance.org.au](http://www.hempalliance.org.au)